



# User Manual Control Unit StreetRT

# Content

Product description .....	1
Connection and mechanical specifications .....	3
Access to Street RT .....	4
Main menu .....	4
Controllers tab .....	5
Groups tab .....	7
Ballast tab .....	9
Scheduler tab .....	12
Astroclock tab .....	15
Site tab .....	17



## 1. Product description



Controller STREET RT is designed to control the outdoor lighting via existing powerlines. Its signals are transferred to the powerline through PANTER PNT360 modulator. STREET RT is equipped with ethernet interface, which is used for communication with user. Device construction guarantees a high operational reliability.

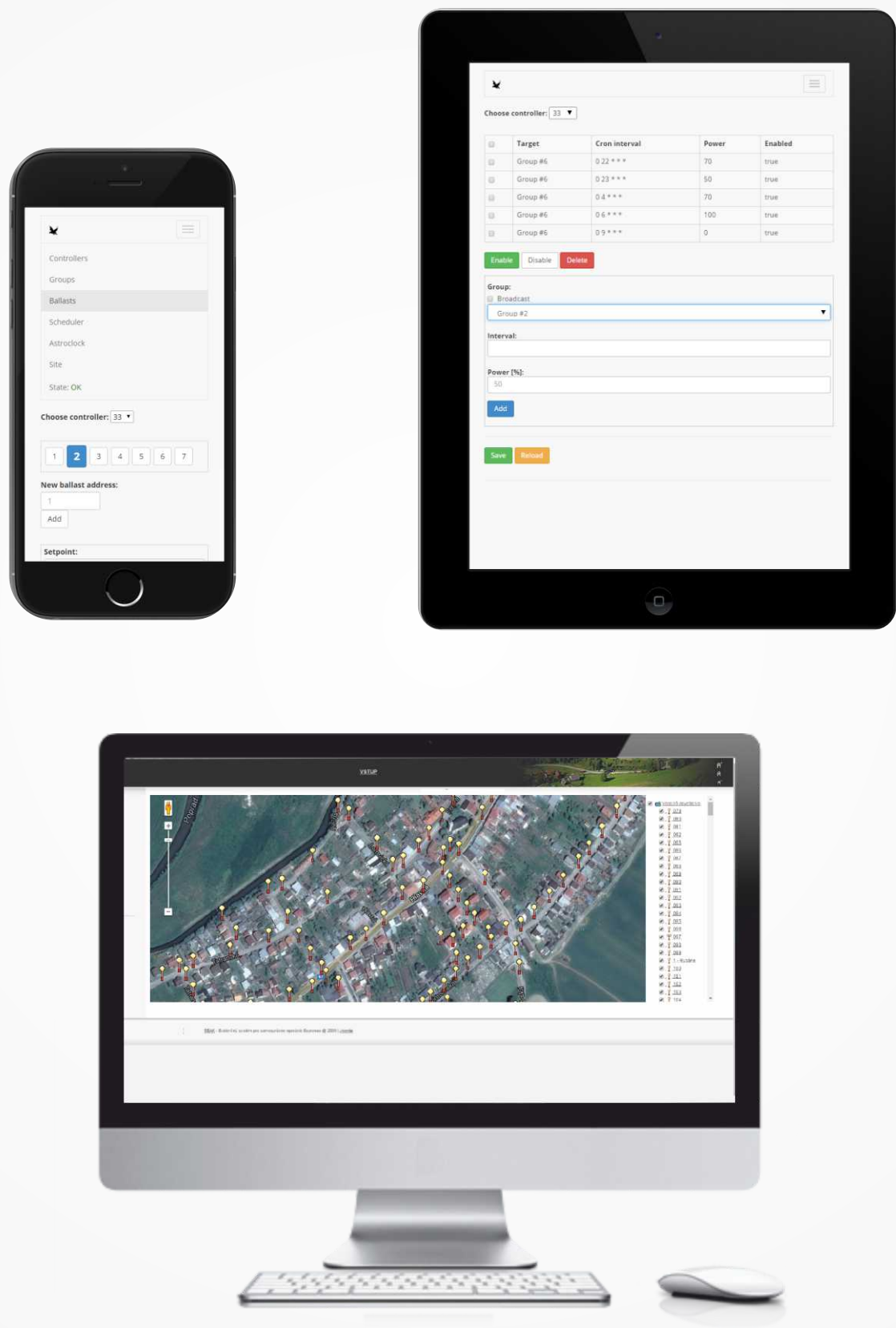
### StreetRT content

Item	Description
TST	signals the state of device
ERR	signals error
3V3	signals power-on
LAN	ethernet RJ45 connector
MicroSD	MicroSD slot
12-24V	power supply 12-24 V DC, polarity doesn't matter
RS485	serial communication RS485
UART	universal asynchronous receiver/transmitter
ANT	GSM connector female
DSxx	thermal sensor connection
OPi1	pulse output from electricity meter of Panter
OPi2	connector for door sensor
OPi3	manual dimming - Broadcast 100%
OPi4	connector for twilight switch
OPo1	connector for control of solid state relay
OPo2	connector for control of solid state relay

### Front panel LED combination

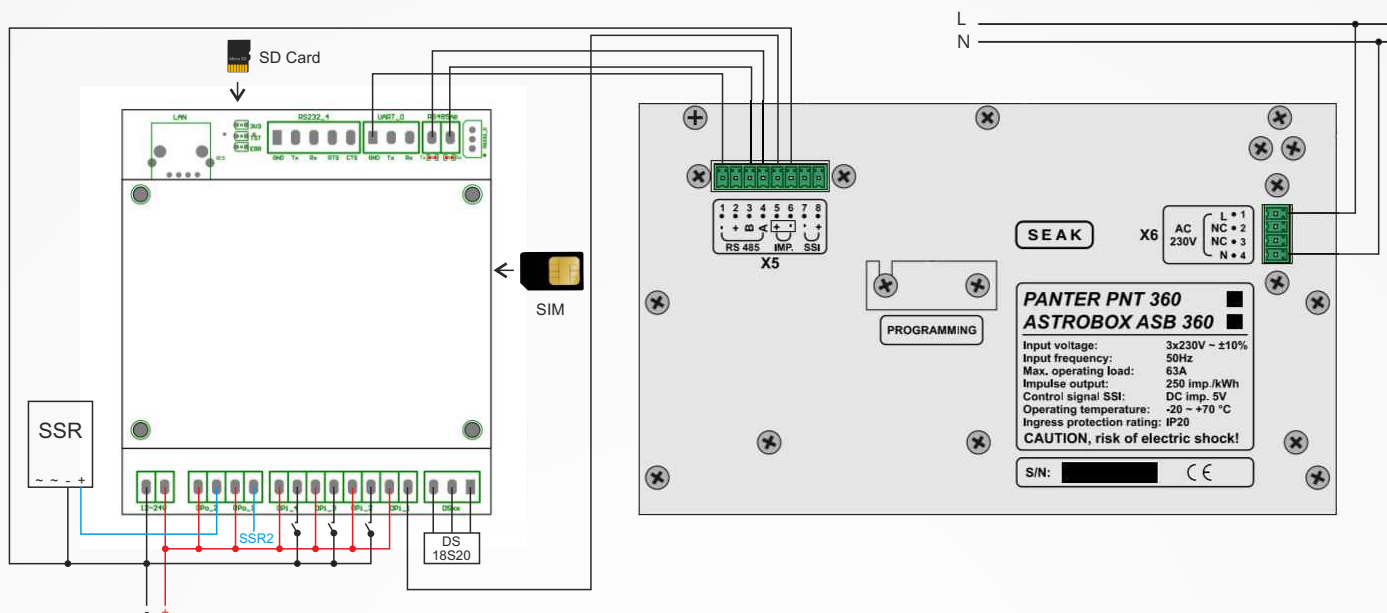
TST	Status	Description
On	On	bootloader
Blink	Off	device in use
Blink	On	bad firmware
Off	On	error in device

Screenshots of the web interface for setting the lighting controls. StreetRT can be controlled by your phone, tablet or computer with internet connection.

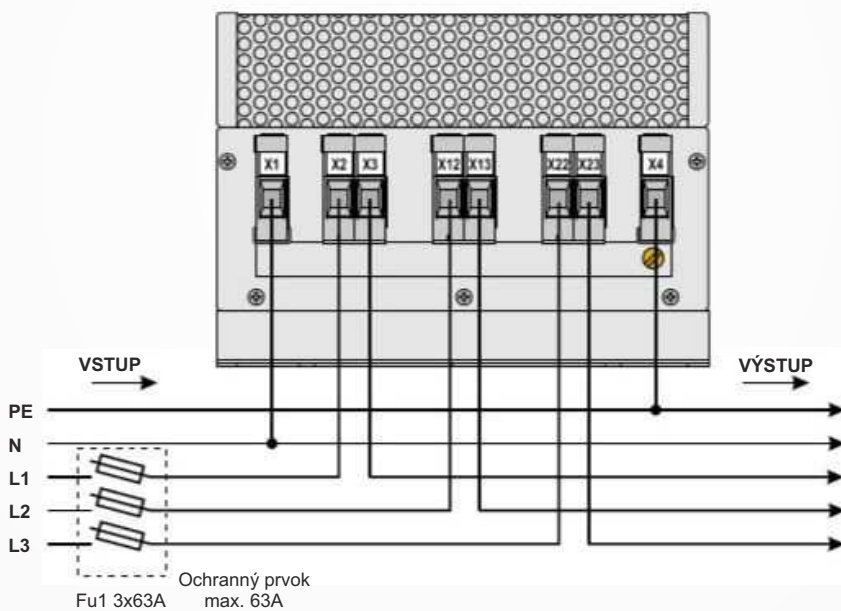


## 2. Connection and mechanical specification

Connection of STREET RT with the control portion of PANTER

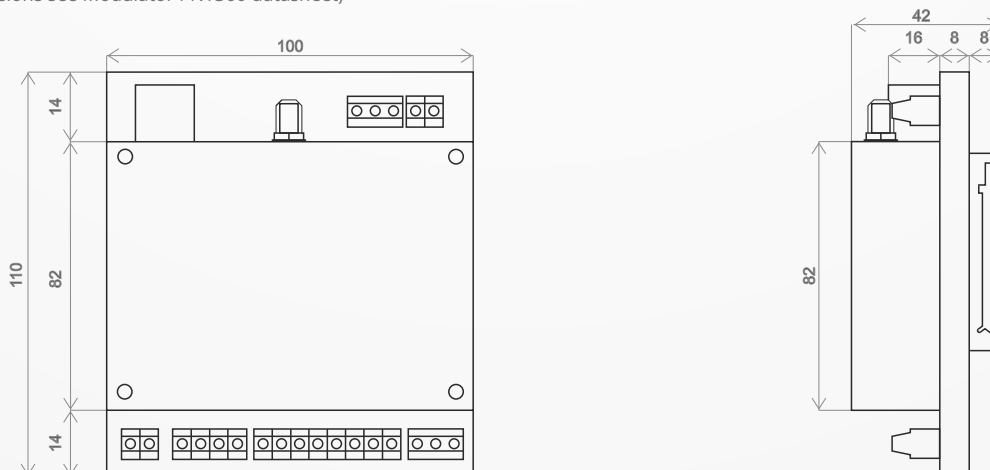


Connection of PANTER power section



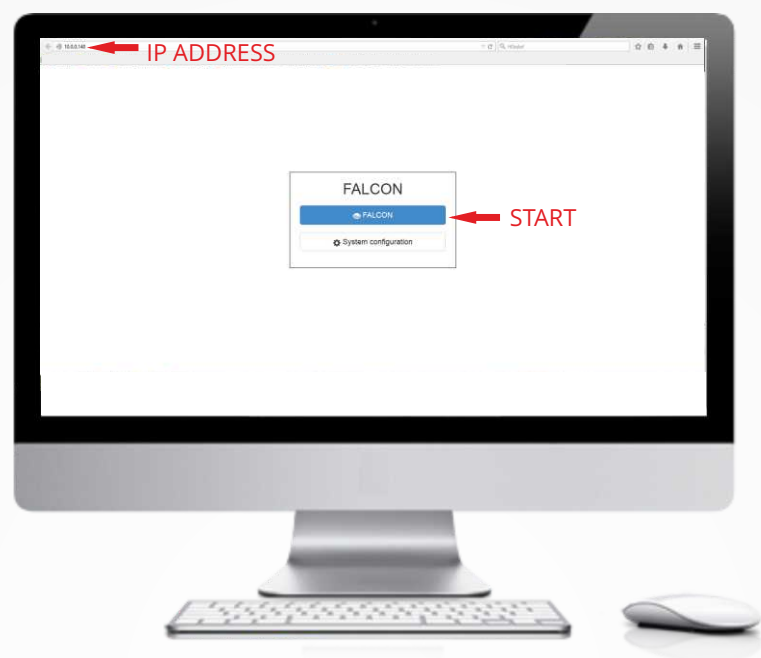
### Mechanical specification (in mm)

(for PANTER dimensions see Modulator PNT360 datasheet)



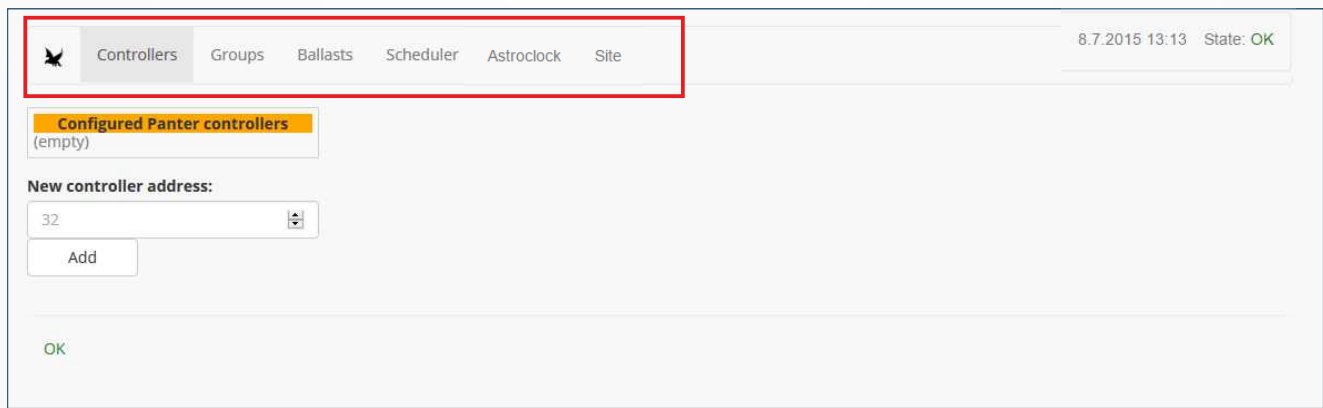
### 3. Access to STREET RT

To access STREET RT, connect LAN cable to your device and to your access point or PC/laptop. Now you can access STREET RT configuration via web browser (Chrome, IE, Mozilla, Opera). Fill in the address bar in your web browser with the device IP address. IP address is provided to device by DHCP and you can check the IP address of your device in access point configuration. A welcome screen will appear. To enter main menu press FALCON and enter Login: „op“ and Password: „compact“.



### 4. Main menu

After pressing the FALCON button and login, the main menu will appear. In main menu you have access to all configuration options available in STREET RT.



Item	Description
Controller	view an summary of basic settings, summary of programed groups
Groups	creating groups and setting the level of dimming for individual groups
Ballast	inclusion and addressing luminaires into groups by ID
Scheduler	establishing the timetable for dimming lights and groups
Astroclock	establishing the timetable for dimming lights and groups depending on location
Site	Location data

## 5. Controllers tab

In controllers tab you can access configuration for communication with PANTER.

Controllers

Groups

Ballasts

Scheduler

Astroclock

Site

8.7.2015 12:56 State: OK

Configured Panter controllers

Panter #1

New controller address:

1

Add

Address

1

Controller state

1

Controller version

2.0

Consumed energy [kWh]

1.7

Consumed energy timestamp

2015-07-08 10:34:40.092

Active phases

1

Modulator temperatures

0 °C 0 °C 0 °C

☒ Set number of active phases
 

1

☒ Meter preload [kWh]
 

1.7

☒ Broadcast setpoint
 

26

Save

Delete

Group	Power
#1 (Main street)	32
#2 (Street №1)	0

Item	Description
New controller address	creates a new configuration
Configured PANTER controllers	list of PANTER devices and their address which is set on PANTER (from 32-63)
Address	Panter`s address
Controller state	see Modulator PNT360 datasheet
Controller version	version of Panter`s firmware
Consumed energy	amount of consumed energy
Consumed energy timestamp	date and time, when was set the origin value of consumed energy
Active phases	set the count of active phases
Modulator temperatures	temperatures of individual phases of modulator
Set number of active phases	set the coun of phases that are active
Meter preload	set the origin value of consumed energy
Broadcast setpoint	set the lighting intensity for all luminaires
Save	saves values that have been set
Delete	deletion of saved values
Group	name of the group, that is assigned to chosen controller
Power	light intensity of luminaires of the group



## Adding and creating new configuration of modulation unit PANTER PNT360

Adding a new modulation unit is performed via function **New Controller address**. According to attached documentation of modulation unit, we fill address and click **Add**. Subsequently it is necessary to confirm settings with **Commit** button. After correct configuration, you see **OK** status and in Configured PANTER controllers tab you'll see the number and name of installed PANTER.

Controllers Groups Ballasts Scheduler Astroclock Site 8.7.2015 13:13 State: OK

**Configured Panter controllers**  
Panter #33

New controller address: 33

Add

Configuration was modified! Commit

OK

## Test of connection between modulation unit PANTER PNT360 and STREET RT

Device is testing if connection between modulation unit PANTER PNT360 and STREET RT is correct. After clicking **Broadcast setpoint** we can set the level of dimming and send the command with **Save** button. If connection between modulation unit and control unit is correct lights will dim on wanted level.

Controllers Groups Ballasts Scheduler Astroclock Site 8.7.2015 12:56 State: OK

**Configured Panter controllers**  
Panter #1

New controller address: 1

Add

Address: 1

Controller state: 1

Controller version: 2.0

Consumed energy [kWh]: 1.7

Consumed energy timestamp: 2015-07-08 10:34:40.092

Active phases: 1

Modulator temperatures: 0 °C 0 °C 0 °C

☐ Set number of active phases

☐ Meter preload [kWh]

☒ Broadcast setpoint

26

Save

Delete

Group	Power
#1 (Main street)	32
#2 (Street №1)	0



## 6. Groups tab

In Groups tab you can find these options:

Item	Description
Choose controller	choice of PANTER, which we want to configure
Configured groups	view groups of chosen PANTER
New group address	vytvorenie novej skupiny pre požadovaný PANTER
Description	name of group, if not specified it will be set to Group #X
Save	save values
Delete	delete saved values
Setpoint	set the lighting intensity of group
Test	sends the intensity value to group, so user can see how lights lit at set intensity level
Revert	set the default value (for example: if it was changed by test)
Set	set selected illuminance value for the group
Assigned ballasts	ballasts assigned to group

## Creating a new group

Before the creation of group it is necessary to chose the ID of control unit which is installed in the switchboard. We fill individual fields in Groups tab in this order. In the New group address, fill the group ID. After clicking **Add** button, group with new address will be added. Afterwards it is necessary to commit changes by clicking **Commit** button. After correct configuration we`ll see **OK status** and number and name of added group will appear in Controllers tab.

The screenshot shows the 'Groups' tab in a web interface. At the top, there are tabs for 'Controllers', 'Groups', 'Ballasts', 'Scheduler', 'Astroclock', and 'Site'. The 'Groups' tab is active. On the right, it shows the date '8.7.2015 13:13' and 'State: OK'. Below the tabs, there is a 'Choose controller:' dropdown menu with '33' selected. A red arrow points to this dropdown with the text '1. Choose controller'. Below this is a 'Configured groups' section with a list: 'Group #1', 'Group #2', and 'Group #3'. Below the list is a 'New group address:' input field with the value '3'. A red arrow points to this field with the text '2. Number of new group'. Below the input field is an 'Add' button. A red arrow points to this button with the text '3. Add'. Below the 'Add' button is a 'Commit' button. A red arrow points to this button with the text '4. Commit'. Below the 'Commit' button is a green 'OK' status indicator. A red arrow points to this indicator with the text '5. status OK'.

## Editing and deleting groups


First we enter name of the group into **Description** field (for example Main street, Street Nr. 1). Afterwards we save the name by clicking the **Save** button. In field **Setpoint**, we set lighting intensity for group and commit with button **Set**. If user want to try level of intensity, he can do it by clicking **Test** button. If it`s necessary to set original value it can be done by pressing **Revert** button.

If we want to delete group we mark it and press **Delete** button. Afterwards we need to commit changes by **Commit** button.

The screenshot shows the 'Groups' tab in a web interface. At the top, there are tabs for 'Controllers', 'Groups', 'Ballasts', 'Scheduler', 'Astroclock', and 'Site'. The 'Groups' tab is active. On the right, it shows the date '8.7.2015 13:13' and 'State: OK'. Below the tabs, there is a 'Choose controller:' dropdown menu with '33' selected. Below this is a 'Configured groups' section with a list: '#1 (Main street)', '#2 (Street Nr. 1)', and 'Group #3'. Below the list is a 'New group address:' input field with the value '3'. Below the input field is an 'Add' button. Below the 'Add' button is a 'Description:' input field with the value 'Street Nr. 2'. A red arrow points to this field with the text '1. Save'. Below the 'Description' field is a 'Setpoint:' input field with the value '80'. A red arrow points to this field with the text '2. Nastavenie úrovne stmievania'. Below the 'Setpoint' field is a 'Set' button. A red arrow points to this button with the text '3. Set'. Below the 'Set' button are 'Test' and 'Revert' buttons. Below these buttons is a 'Delete' button. On the right side of the interface, there is an 'Assigned ballasts:' section with the text '(empty)'.

## 7. Ballast tab

In Ballast tab you can see this control options:

 Controllers Groups **Ballasts** Scheduler Astroclock Site

8.7.2015 13:00 State: OK

Choose controller: 1 ▾

1

2

Delete selected

New ballast address: 1 Add

Setpoint: 50

Set

Group: #1 (Main street) ▾

Save Reset

Latitude: 48

Longitude: 19

Save Reset



Názov položky	Popis
Choose controller	výber požadovaného PANTER, pre ktorý sa budú konfigurovať skupiny
New ballast address	vytvorenie nového balastu (číslo musí byť unikátne)
Delete	deletion of ballast from the group
Add	creates new ballast
Setpoint	lighting intensity of the ballast
Set	set the lighting intensity for ballast
Group	choice of group in which we want to assign ballast
Save	saves values that have been set and assign ballast in to the group
Reset	deletion of ballast from group
Latitude	sets the latitude
Longitude	sets the longitude
Save	saves the settings of latitude and longitude
Reset	cancels the settings of latitude and longitude

## Adding luminaire to system

Before creation of group it's necessary to choose number of controller which is installed in the switchbox. Adding lamp in to the system is realized by filling the ID of lamp in the **New ballast address** field and proceeding by **Add** button. Afterwards it is necessary to commit changes by **Commit** button. Level of dimming is set in **Setpoint** field and committed with **Set** button. If everything was correct, ID of new lamp will appear in list on the left side of display.

Choose controller: 1 ▾ 1. Choose controller

1 2

Delete selected

New ballast address: 1 Add

2. Number of new ballast 3. Add

4. Nastavenie úrovne stmievania

Setpoint: 50

Set 5. Set

Group: #1 (Main street) ▾

Save Reset

5. Nastavenie polohy balastu

Latitude: 48

Longitude: 19

Save Reset

Map showing ballast locations (yellow pins) on a street map.

## Setting the location of ballast

You can set location of every ballast by setting it's latitude and longitude and it's location will be shown on map through google api. If we set latitude and longitude to every individual ballast, they will be all shown on the map and after clicking on ballast shown on the map you can see it's settings. Field **Latitude** is used for setting latitude of chosen ballast. Field **Longitude** is used for setting longitude of chosen ballast.

## Adding and reassignment of lamp in the group

In the Group field we fill ID of group a commit by clicking **Save**.

In case of changing group number for individual lamp we choose it`s ID and change the settings for chosen lamp. Afterwards we commit with **Save** button.

The screenshot shows the 'Ballasts' tab in a web interface. At the top, there are navigation tabs: Controllers, Groups, Ballasts (selected), Scheduler, Astroclock, and Site. The top right corner displays the date and time '8.7.2015 13:00' and the state 'OK'. Below the navigation tabs, there is a 'Choose controller:' dropdown menu set to '1'. On the left side, there are two buttons labeled '1' and '2', and a red button labeled 'Delete selected'. Below these, there is a 'New ballast address:' input field with the value '1' and an 'Add' button. On the right side, there are several settings: 'Setpoint:' with a value of 50 and a 'Set' button; 'Group:' with a dropdown menu showing '#1 (Main street)' and a red box around it, with a red arrow pointing to it labeled '1. Number of group'; 'Save' and 'Reset' buttons below the group dropdown, with a red arrow pointing to the 'Save' button labeled '2. Save'; 'Latitude:' with a value of 48 and a 'Save' button; and 'Longitude:' with a value of 19 and a 'Reset' button.

## Deletion of lamp from group

We choose lamp ID and press **Reset** (1a). Afterwards it is necessary to commit changes by **Commit** button. Chosen lamp will not be assigned to any group.

## Deletion of lamp from system

We choose ID of lamp and press **Delete** button (1b). Afterwards it`s necessary to commit changes by pressing **Commit** button.

The screenshot shows the 'Ballasts' tab in a web interface. At the top, there are navigation tabs: Controllers, Groups, Ballasts (selected), Scheduler, Astroclock, and Site. The top right corner displays the date and time '8.7.2015 13:00' and the state 'OK'. Below the navigation tabs, there is a 'Choose controller:' dropdown menu set to '1'. On the left side, there are two buttons labeled '1' and '2', and a red button labeled 'Delete selected' with a red arrow pointing to it labeled '1b. Delete'. Below these, there is a 'New ballast address:' input field with the value '1' and an 'Add' button. On the right side, there are several settings: 'Setpoint:' with a value of 50 and a 'Set' button; 'Group:' with a dropdown menu showing '#1 (Main street)' and a red box around it, with a red arrow pointing to it labeled '1a. Reset'; 'Save' and 'Reset' buttons below the group dropdown, with a red arrow pointing to the 'Reset' button labeled '1a. Reset'; 'Latitude:' with a value of 48 and a 'Save' button; and 'Longitude:' with a value of 19 and a 'Reset' button.

## 8. Scheduler tab

Controllers

Groups

Ballasts

Scheduler

Astroclock

Site

8.7.2015 13:10

State: OK

Choose controller: 1

<input type="checkbox"/>	Target	Cron interval	Power	Enabled
<input type="checkbox"/>	#1 (Main street)	**** 1	100	true

Enable

Disable

Delete

Group:

☐ Broadcast

#1 (Main street)

Interval:

minute [0-59]:

every

☐ each 2 -nd

hour [0-59]:

every

☐ each 2 -nd

day of month [1-31]:

every

☐ each 2 -nd

month [1-12]:

(jan, feb, mar, ... dec)

every

☐ each 2 -nd

day of week [0-7]:

(sun, mon, tue, ... sun)

every

☐ each 2 -nd

Power [%]:

100

Add

Save

Reload

Item	Description
Choose controller	select the PANTER, that we want to configure
Power	intensity of lighting
Group	group number
Interval	time interval by "Job scheduler"
Enabled	display if the individual task is enabled or disabled
Enable	enable task
Delete	delete task from list
Disable	disable task

You can create several tasks for each groups. Their count is not restricted. Execution of each task is entered in Cron format. Tools for creation of task are on the right side of the screen.

Item	Description
Group	choose the name of group
Interval	cron format of time when the task have to be carried out
Power	set the lighting intensity
Add	add task to the list
Save	save tasks
Reload	delete ballast from group



## Creation of time harmonogram

You can create several tasks for each groups. Their count is not restricted. Execution of each task is entered in Cron format. Tools for creation of task are on the right side of the screen.

After creation of dimming harmonogram it's necessary to login a choose number of modulation unit PANTER PNT360. Creation of harmonogram is provided by menu on the right side of screen. We choose group of light, insert time interval in Cron format and set level of dimming in percent. We send command with filled parameters by pressing Add button. After correct creation, new group with description of parameters will appear on left side of screen.

Choose controller: 1

1. Number of controller

2. Create dimming schedule

3. Add

## Creating dimming interval in CRON format

Dimming interval can be created for all luminaires by checking the broadcast option in **Create dimming schedule**, or for individual group, which can be chosen in the same part of screen. Next step is to set interval, which can be set in Cron format or by choosing items from lists. There are independent lists for minutes, hours, days in month, months and days in week. For every list we can choose from four options (every, each, list, range). So it's possible that dimming interval will be active every Monday. Another option is that interval will be active every day. Third option is to set the list of days on which will be the interval active. Last option is to set range of days in which will be current harmonogram active e.g. from Monday to Friday. This options are available for all settings, meaning, for minutes, hours, day in month, months and day in week.

Examples:

- 021\*\*\* - every day at 21:00
- 51\*\*\* - every day at 1:05 ráno
- \*2\*\*\* - every minute from 2:00 to 2:59
- 001\*\* - every first day in month

There are free convertors for converting time to CRON format for dimming harmonogram.



## Disable, enable and delete group with schedule from system

We choose group by its name and click **Disable**. Afterwards it's necessary to commit changes with **Save** button. Selected harmonogram will be disabled.

To re-enable group with schedule we mark the group and click **Enable**. Afterwards it's necessary to commit changes with **Save** button. Selected schedule will be enabled.

For deletion of group from system we choose group and click **Delete**. To save new settings it necessary to commit it by **Save** button.

The screenshot shows the 'Scheduler' tab in a web application. At the top, there are navigation tabs: Controllers, Groups, Ballasts, Scheduler (active), Astroclock, and Site. The top right corner displays the date and time '8.7.2015 13:10' and the status 'State: OK'.

Below the navigation tabs, there is a 'Choose controller:' dropdown menu set to '1'. Below this is a table with the following columns: Target, Cron interval, Power, and Enabled.

Target	Cron interval	Power	Enabled
<input type="checkbox"/> #1 (Main street)	****1	100	true

Below the table, there are three buttons: 'Enable' (green), 'Disable' (grey), and 'Delete' (red). A red box highlights these buttons, and a red arrow points to the 'Enable' button with the annotation '2. Enable, Disable and Delete'.

To the right of the table, there is a 'Group:' section. It contains a dropdown menu set to '#1 (Main street)'. Below this is an 'Interval:' section with a dropdown menu set to '\*\*\*\*'. Below the interval section, there are several rows of settings for different time units (minute, hour, day of month, month, day of week) with dropdown menus and checkboxes. The 'day of week' dropdown menu is open, showing options: 'every', 'every', 'each', 'list', and 'range'. Below these settings is a 'Power [%]:' input field set to '100' and an 'Add' button.

At the bottom of the interface, there are two buttons: 'Save' (green) and 'Reload' (orange). A red box highlights these buttons, and a red arrow points to the 'Save' button with the annotation '3. Save'.

Red annotations on the screenshot include:

- '1. Choose a group' with an arrow pointing to the checkbox in the table row.
- '2. Enable, Disable and Delete' with an arrow pointing to the 'Enable' button.
- '3. Save' with an arrow pointing to the 'Save' button.

## 9. Astroclock tab

In Astroclock tab it's possible to create dimming schedule, like in Scheduler tab. Difference is that in Astroclock tab is schedule created relatively to sunrise/sunset.

Individual setpoints are relative to sunrise/sunset, where time of sunrise/sunset is loaded automatically considering location from Site tab.

Control options are similar to these in Scheduler tab. Difference is that setpoints are not in Cron format, but it's set by choosing the **Event** (sunrise/sunset) and **Offset**, which represents time interval from chosen event in minutes.

Control options for Astroclock tab, are described in table below.

Item	Description
Choose controller	set Panter, we want to configure
Power	lighting intensity
Group	name of group
Event	sunrise/sunset plus offset
Enabled	displays if task is enabled or disabled
Enable	enable task
Delete	delete task from list
Disable	zakázat vybranú úlohu
Group	chose group for which we want to add tasks
Event	chose sunrise/sunset
Offset	time interval relative to Event
Power	set lighting intensity
Add	add task to list
Save	save task
Reload	remove ballast from group

## Creation of dimming schedule

For creation of dimming harmonogram it's necessary to login and choose number of modulation unit PANTER PNT360.

Creation of harmonogram is provided by menu on the right side of screen. We choose group of light, for which we chose **Event and Offset** in minutes. Setpoint is defined by Event and Offset. Event is sunrise or sunset, and its time is loaded automaticly considering the location and Offset is time interval relative to Event. We send command with filled parameters by pressing Add button. After correct creation, new group with description of parameters will appear on left side of screen.

Choose controller: 1

1. Number of controller

	Target	Event	Power	Enabled
<input type="checkbox"/>	#1 (Main street)	at sunrise	100	true
<input type="checkbox"/>	#2 (Street №1)	15 minutes after sunset	20	true

Enable Disable Delete

2. Create dimming schedule

Group: ☐ Broadcast

Event:

Offset [min]:

Power [%]:

Add

3. Add

Save Reload

## Disable, enable and delete group with schedule from system

We choose group by its name and click **Disable**. Afterwards it's necessary to commit changes with **Save** button. Selected harmonogram will be disabled.

To re-enable group with schedule we mark the group and click **Enable**. Afterwards it's necessary to commit changes with **Save** button. Selected schedule will be enabled.

For deletion of group from system we choose group and click **Delete**. To save new settings it necessary to commit it by **Save** button.

Choose controller: 1

1. Choose a group

	Target	Event	Power	Enabled
<input type="checkbox"/>	#1 (Main street)	at sunrise	100	true
<input type="checkbox"/>	#2 (Street №1)	15 minutes after sunset	20	true

2. Enable, Disable and Delete


Enable Disable Delete

3. Save

Save Reload

## 10. Site tab

Site tab is used to determine longitude and latitude, where the equipment is located and based on these data is determined by sunrise and sunset.

 Controllers Groups Ballasts Scheduler Astroclock **Site**

8.7.2015 13:13 State: OK

### Location

Latitude

13

Longitude

12

Sunrise

06:47

Sunset

19:29

✓ Save

### Settings

☒ Restore broadcast and group setpoints on startup

✓ Save

### Documentation

+ Add document

Adjusting the position in latitude and longitude, is used to determine sunrise and sunset for AstroClock. When we choose sunrise or sunset in Event field in Astroclock tab, the time loaded in Site tab will be automatically assigned.

Restore point means that, if this option is checked, on power failure and after powerline reboot the controller sends last command, so it can't happen that lights will shine during day.

Item	Description
Location	location where equipement is set
Latitude	latitude
Longitude	longitude
Sunrise	time of sunrise
Sunset	time of sunset
Save	save the location data
Settings	settings
Restore ...	restore boradcast and settings of groups at start
Save	save settings
Documentation	documentation
Add document	add document



Levočská 109  
080 01 Prešov  
Slovakia

[www.seakenergetics.com](http://www.seakenergetics.com)  
[seak@seak.sk](mailto:seak@seak.sk)

Tel.: +421 (51) 77 15 065

